

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(Not for submission under 37 CFR 1.99)

|                        |                    |
|------------------------|--------------------|
| Application Number     | 10577607           |
| Filing Date            | 2006-04-27         |
| First Named Inventor   | W. Charles O'Neill |
| Art Unit               | 1619               |
| Examiner Name          | Tigabu Kassa       |
| Attorney Docket Number | 050508-1400        |

**U.S.PATENTS**

| Examiner Initial* | Cite No | Patent Number | Kind Code <sup>1</sup> | Issue Date | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear |
|-------------------|---------|---------------|------------------------|------------|---|--|
|                   | 1       |               |                        |            |   |  |

If you wish to add additional U.S. Patent citation information please click the Add button.

**U.S.PATENT APPLICATION PUBLICATIONS**

| Examiner Initial* | Cite No | Publication Number | Kind Code <sup>1</sup> | Publication Date | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear |
|-------------------|---------|--------------------|------------------------|------------------|---|--|
|                   | 1       |                    |                        |                  |   |  |

If you wish to add additional U.S. Published Application citation information please click the Add button.

**FOREIGN PATENT DOCUMENTS**

| Examiner Initial* | Cite No | Foreign Document Number <sup>3</sup> | Country Code <sup>2,i</sup> | Kind Code <sup>4</sup> | Publication Date | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear | T <sup>5</sup>           |
|-------------------|---------|--------------------------------------|-----------------------------|------------------------|------------------|---|--|--------------------------|
|                   | 1       |                                      |                             |                        |                  |   |  | <input type="checkbox"/> |

If you wish to add additional Foreign Patent Document citation information please click the Add button

**NON-PATENT LITERATURE DOCUMENTS**

|                    |         |   |                          |
|--------------------|---------|---|--------------------------|
| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>5</sup>           |
|                    |         |   | <input type="checkbox"/> |

|   |                        |                    |
|---|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 10577607           |
|   | Filing Date            | 2006-04-27         |
|   | First Named Inventor   | W. Charles O'Neill |
|   | Art Unit               | 1619               |
|   | Examiner Name          | Tigabu Kassa       |
|   | Attorney Docket Number | 050508-1400        |

|    |   |                          |
|----|---|--------------------------|
| 1  | O'NEILL, W. CHARLES et al. Treatment with pyrophosphate inhibits uremic vascular calcification. Kidney International 2011; 79: 512-517. USA.  | <input type="checkbox"/> |
| 2  | RUSSEL RGG et al. Pyrophosphate and diphosphates in calcium metabolism and their possible role in renal failure. Archives of Internal Medicine 1969; 124: 571-575. Switzerland.               | <input type="checkbox"/> |
| 3  | MEYER JL. Can biological calcification occur in the presence of pyrophosphate? Archives of Biochemistry and Biophysics 1984; 231: 1-8. USA.   | <input type="checkbox"/> |
| 4  | FRANCIS MD et al. Diphosphonates inhibit formation of calcium phosphate crystals in vitro and pathological calcification in vivo. Science 1969; 165: 1264-1266. USA.                          | <input type="checkbox"/> |
| 5  | TERKELTAUB, RA. Inorganic pyrophosphate generation and disposition in pathophysiology. American Journal of Physiology Cell Physiology 2001; 281: C1-C11. USA.                                 | <input type="checkbox"/> |
| 6  | RUTSCH F et al. PC-1 nucleoside triphosphate pyrophosphohydrolase deficiency in idiopathic infantile arterial calcification. American Journal of Pathology 2001; 158: 543-554. USA.           | <input type="checkbox"/> |
| 7  | GODING JW et al. Ecto-phosphodiesterase/pyrophosphate of lymphocytes and non-lymphoid cells; structure and function of the PC-1 family. Immunological Reviews 1998; 161: 11-26. Denmark.      | <input type="checkbox"/> |
| 8  | O'NEILL WC et al. Plasma pyrophosphate and vascular calcification in chronic kidney disease. Nephrology Dialysis Transplantation 2010; 25: 187-191. England.                                  | <input type="checkbox"/> |
| 9  | LOMASHVILI KA et al. Upregulation of alkaline phosphatase and pyrophosphate hydrolysis; potential mechanism for uremic vascular calcification. Kidney International 2008; 73: 1024-1030. USA. | <input type="checkbox"/> |
| 10 | PRICE PA et al. Artery calcification in uremic rats is increased by a low protein diet and prevented by treatment with ibandronate. Kidney International 2006; 70: 1577-1583. USA.            | <input type="checkbox"/> |
| 11 | LOMASHVILI KA et al. Effect of bisphosphates on vascular calcification and bone metabolism in experimental renal failure. Kidney International 2009; 75: 617-625. USA.                        | <input type="checkbox"/> |

|  |  |                        |                    |
|--|--|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>(Not for submission under 37 CFR 1.99) |  | Application Number     | 10577607           |
|  |  | Filing Date            | 2006-04-27         |
|  |  | First Named Inventor   | W. Charles O'Neill |
|  |  | Art Unit               | 1619               |
|  |  | Examiner Name          | Tigabu Kassa       |
|  |  | Attorney Docket Number | 050508-1400        |

|  |    |  |                          |
|--|----|--|--------------------------|
|  | 12 | MURSHED M et al. Unique coexpression in osteoblasts of broadly expressed genes accounts for the spatial restriction of ECM mineralization to bone. <i>Genes &amp; Development</i> 2005; 19: 1093-1104. USA.  | <input type="checkbox"/> |
|  | 13 | FEDDE KN et al. Alkaline phosphatase knock-out mice recapitulate the metabolic and skeletal defects of infantile hypophosphatasia. <i>Journal of Bone and Mineral Research</i> 1999; 14: 2015-2026. USA.   | <input type="checkbox"/> |
|  | 14 | NEVEN E et al. Endochondral bone formation is involved in media calcification in rats and in men. <i>Kidney International</i> 2007; 72: 574-581. USA.  | <input type="checkbox"/> |
|  | 15 | HENLEY C et al. 1,25 Dihydroxyvitamin D3 but not cinacalcet HCl (Sensipar/Mimpara) treatment mediates aortic calcification in a rat model of secondary hyperparathyroidism. <i>Nephrology Dialysis Transplantation</i> 2005; 20: 1370-1377. England. | <input type="checkbox"/> |
|  | 16 | MIZOBUCHI M et al. Differential effects of vitamin D receptor activators on vascular calcification in uremic rats. <i>Kidney International</i> 2007; 72: 709-715. USA.   | <input type="checkbox"/> |
|  | 17 | CARDUS A et al. Differential effects of vitamin D analogs on vascular calcification. <i>Journal of Bone and Mineral Research</i> 2007; 22: 860-866. USA.   | <input type="checkbox"/> |
|  | 18 | YOKOZAWA T et al. Animal model of adenine-induced chronic renal failure in rats. <i>Nephron</i> 1986; 44: 230-234. Japan.  | <input type="checkbox"/> |
|  | 19 | OKADA H et al. Reversibility of adenine-induced renal failure in rats. <i>Clinical and Experimental Nephrology</i> 199; 3: 82-88. Japan.   | <input type="checkbox"/> |
|  | 20 | MOOREHEAD W et al. 2-amino-2-methyl-1-propanol as the alkalinizing agent in an improved continuous-flow cresolphthalein complexone procedure for calcium in serum. <i>Clinical Chemistry</i> 1974; 20: 1458-1460. USA.                               | <input type="checkbox"/> |
|  | 21 | MALLUCHE H et al. A new semiautomatic method for quantitative static and dynamic bone histology. <i>Calcified Tissue International</i> 1982; 34:439-448. USA.  | <input type="checkbox"/> |
|  | 22 | MANAKA RC et al. A program package for quantitative analysis of histologic structure and remodeling dynamics of bone. <i>Computer Programs in Biomedicine</i> 1981; 13: 191-202. USA.  | <input type="checkbox"/> |

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

|                        |                    |
|------------------------|--------------------|
| Application Number     | 10577607           |
| Filing Date            | 2006-04-27         |
| First Named Inventor   | W. Charles O'Neill |
| Art Unit               | 1619               |
| Examiner Name          | Tigabu Kassa       |
| Attorney Docket Number | 050508-1400        |

23

COGAN EB et al., A robotics-based automated assay for inorganic and organic phosphates, Anal Biochem 1999; 271: 29-35. USA

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

<sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

|                        |                    |
|------------------------|--------------------|
| Application Number     | 10577607           |
| Filing Date            | 2006-04-27         |
| First Named Inventor   | W. Charles O'Neill |
| Art Unit               | 1619               |
| Examiner Name          | Tigabu Kassa       |
| Attorney Docket Number | 050508-1400        |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

|            |                       |                     |            |
|------------|-----------------------|---------------------|------------|
| Signature  | <i>Cynthia J. Lee</i> | Date (YYYY-MM-DD)   | 2011-11-28 |
| Name/Print | Cynthia J. Lee        | Registration Number | 46,033     |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.